CLAIMS

What is claimed is:

1. An intraocular lens (IOL) assembly comprising:

a lens assembly comprising an interface element adapted for attachment to an ocular structure, said lens assembly comprising a tensing element adapted to expand and contract relative to said lens assembly and apply a tensing force on said ocular structure directed towards an inner volume of said lens assembly.

2. The IOL assembly according to claim 1, wherein said tensing element comprises a selectively inflatable and deflatable member, said selectively inflatable and deflatable member being inflatable with a fluid.

3. The IOL assembly according to claim 2, wherein said selectively inflatable and deflatable member comprises at least one at least partially annular channel formed in the inner volume of said lens assembly.

4. The IOL assembly according to claim 3, wherein said at least one at least partially annular channel is generally concentric with a central axis of said lens assembly.

5. The IOL assembly according to claim 2, wherein said selectively inflatable and deflatable member is formed with apertures through which said fluid flows.

6. The IOL assembly according to claim 2, wherein said selectively inflatable and deflatable member is adapted to absorb and expel said fluid by osmotic pressure.

7. The IOL assembly according to claim 2, wherein said selectively inflatable and deflatable member comprises a biodegradable plug adapted to degrade with time.

8. The IOL assembly according to claim 1, wherein said interface element comprises at least one of a roughened surface, a protrusion, a haptic, growth factor and biological adhesive.

9. The IOL assembly according to claim 1, wherein said tensing element comprises a variably expansive member that extends from one portion of said lens assembly to another portion of said lens assembly, wherein in a first configuration said variably expansive member is not adapted to apply a tensing force on the ocular structure, and in a second configuration said variably expansive member is adapted to apply a tensing force on the ocular structure.

10. The IOL assembly according to claim 1, wherein in the first configuration, said variably expansive member applies a preload to said lens assembly that pushes the perimeter of said lens assembly towards ocular structure.

11. The IOL assembly according to claim 2, wherein said selectively inflatable and deflatable member comprises at least one inflatable and deflatable haptic.

12. The IOL assembly according to claim 11, wherein said at least one inflatable and deflatable haptic comprises an annular segment attached to said selectively inflatable and deflatable member by means of a strut.

13. The IOL assembly according to claim 11, wherein spaces between anterior and posterior faces of said selectively inflatable and deflatable member and said lens assembly are filled with a fluid.

14. The IOL assembly according to claim 1, wherein said lens assembly comprises at least one of a convex lens, a concave lens, a monofocal lens, a multi-focal lens, a lens having a graded index of refraction, a holographic lens, a doublet lens, a Fresnel lens, a diffracting lens, and a telescopic lens.

15. The IOL assembly according to claim 1, wherein said lens assembly comprises a lens with a predefined shape within a predefined range of diopters.

16. The IOL assembly according to claim 1, wherein said lens assembly comprises at least three optical surfaces.